

- b) that the hydrophilic hydroxylamine shortstopping agent is a hydroxylamine is in paragraph 0025; and
- c) that hydrophobic free radical shortstopping agent which is a disubstituted hydroxylamine compound wherein the substitutions are the same and each substitution is a C₄₋₁₀ alkyl is in paragraph 025 and 0032.

The disclosure and claims stand under rejection and objection for various reasons.

The disclosure is objected to because of the following informality: The Examiner states that the use of term DBzHA should be corrected in line 6 of the first column of Table 2 on page 11 of the instant application.

In response, the Applicants have amended the Specification in paragraph 0032, line 2, by deleting "dibenzylhydroxylamine (DbzHA)" and inserting --dibenzylhydroxylamine (DBzHA)--. In view of that amendment, the use of DBzHA in the table is correct and conforms to the terminology used in the industry.

Claims 1 and 4-9 stand rejected under 35 U.S.C. 102(a) as being clearly anticipated by USP 6,342,647 (ROOF).

Claims 1 and 6-10 stand rejected under 35 U.S.C. 102(b) and Claims 1-10 stand rejected under 35 U.S. C. 103(a) as being clearly anticipated by or being unpatentable over USP 4,293,672 (JACKSON).

Claims 1 and 6-10 stand rejected under 35 U.S.C. 102(b) and Claims 1 -10 are rejected under 35 U.S. C. 103(a) as being as being anticipated by or being unpatentable over USP 4,654,450 (MILLER).

The Applicants have reviewed these references. They, individually or jointly, do not teach, suggest or disclose the Applicants' claimed invention of compositions for shortstopping free radical emulsion polymerizations and stabilizing polymers produced from the corresponding

emulsion processes. The compositions of the present invention include at least one hydrophilic radical scavenger (i.e., shortstopper) and at least one hydrophobic radical scavenger. The compositions are targeted for applications in the emulsion processes of rubber latexes. These compositions exhibit excellent performance not only as shortstoppers of free radical emulsion polymerizations but also as stabilizers of the corresponding polymers. Thus, these new compositions prevent additional polymerization in the particles without requiring additional stabilizer even after such polymers are steam stripped. They do so without the use of chemicals which carry a high safety, health, or environmental risk. In short, the Applicant has discovered a blend of shortstoppers which satisfies the commercial needs of latex manufacture, i.e., fast stopping of polymerization, small amounts of stabilizer remaining in the latex after stripping, effective stabilization of the latex, removal of initiator, and some volatile inhibitor to protect stripping columns from popcorn.

As will be shown below, the cited references do not teach, suggest or disclose the unexpected result obtained by use of the blend of the present invention.

Concerning ROOF, the Examiner advises the Application to see ROOF's Examples 5 and 6 of Table I and claim 1 of a combination of short stopping composition for polymers that anticipates instant claims 1 and 4-9.

The Applicant has reviewed Examples 5 and 6. These Examples disclose the use of a hindered N, N-disubstituted hydroxylamine based bicyclic oxazolidine and of 4-OH TEMPO as shortstoppers. Neither one of these compounds are within the scope of the presently claimed invention of the present application.

Concerning JACKSON, the Examiner advises that JACKSON discloses mixtures of the preferred hydroxylamines (col. 3, lines 40-45) that include the mixture of instant claim 10 and anticipate the instant claims 1 and 6-10. Further the Examiner advises that JACKSON teaches various hydroxylamines for stabilizing polyester resins (col. 3, lines 23-29), and that the preferred hydroxylamines include diethylhydroxylamine, dibutylhydroxylamine, dibenzylhydroxylamine, etc. and mixtures thereof (col. 3, lines 40-45). Thus the Examiner

alleges it would be obvious to the artisan in the art to select mixtures of the preferred hydroxylamines to render claim mixtures obvious and further that it would be obvious to the artisan in the art to select a mixture of hydroxylamines and to use a conventional ratio of 50 to 50 that render obvious the ratios of instant claims 4-5.

JACKSON addresses the problem of reducing premature gelation during esterification of saturated epoxy resins or glycidyl novolac resins with ethylenically unsaturated monocarboxylic acids. JACKSON solves the problem by pre-reacting the unsaturated epoxy resin with a dialkyhydroxyamine. This problem is not related to the problem addressed in the present application and the mere fact the JACKSON includes a list of known hydroxyamine compounds would not teach, suggest or disclose the Applicant's invention.

Concerning MILLER, the Examiner advises that MILLER discloses (see col. 3, lines 11-15) mixtures of preferred hydroxylamines of instant claim 10 and anticipates the instant claims 1 and 6-10. Further the examiner advises that MILLER teaches various hydroxylamines for inhibiting polymerization of vinyl monomers, (abstract, col. 2, line 60 to col. 3, line 1-15), that preferred hydroxylamine includes diethylhydroxylamine and dibutylhydroxylamine (col. 3, lines 11-14), and that two or more of the said hydroxylamines may be used in combination (col. 3, lines 14-15). Thus the Examiner alleges it would be obvious to the artisan in the art to use a combination of the preferred hydroxylamines to render claim 10 obvious, that the hydroxylamines may be prepared as a solution to render instant claims 2-3 obvious and it further would be obvious to the artisan in the art to select a mixture of hydroxylamines and to use a conventional ratio of 50 to 50 that render obvious the ratio of instant claims 4-5.

MILLER addresses the problem of being able to shortstop the polymerization of vinyl aromatic compounds and still be able to inhibit undesired polymerization during storage, shipping or processing. MILLER's exemplified solution to the problem is to use diethylhydroxylamine and p-dodecyl benzene sulfonic acid in combination. In the body of the specification MILLER expands the inventive concept by using standard language to describe compounds of the type related to diethylhydroxylamine, namely N, N-dialkylhydroxylamine compounds, which are

often used as shortstoppers and adds the usual patent language of "combinations". However, MILLER does not divide the N, N-dialkyhydroxylamines into two classes based on the number of carbons in the dialkyl group. MILLER merely discloses that the use of combinations of these known standard N,N-dialkylhydroxylamine compounds together with certain alkyl benzene sulfonic acid compounds, are within MILLER's inventive concept. MILLER does not teach the present Applicant's invention of using a combination of a hydrophilic N,N-dialkylhydroxylamine and a hydrophobic N,N-dialkylhydroxylamine to achieve an unexpected balance of shortstopping of the free radical polymerization and stabilizing the polymers so produced.

In view of the above the Applicant believes that the reasons for rejection have been overcome, the claims herein should be allowable to the Applicant. Accordingly, reconsideration and allowance are requested.

Respectfully submitted;

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